

REMARKS

Claims 1, 4-5, 9-11 and 13-18 were previously pending in this application. Claim 13 has been canceled without prejudice or disclaimer. Claims 1, 9, 10 and 16-18 have been amended herein. Claim 13 has been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of base claim 10. See Office Action, page 5. Independent claims 1, 10, 16, 17 and 18 have been amended to recite the allowable subject matter of claim 13. Applicants respectfully request reconsideration of the application in view of the foregoing amendments and the following remarks.

Claim Objections

The Office Action indicates that claim 17 has been objected to because the recitation of “holds” in line 14 should read “holes”. Applicants have amended claim 17 and, accordingly, request withdrawal of this ground of objection.

Claim Rejections – 35 U.S.C. § 112

Claim 17 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim subject matter which Applicants regard as the invention. The Office Action indicates that there is insufficient antecedent basis for “the housing” as recited in line 4 of claim 17. See, Office Action, page 2. Applicants have amended claim 17 and, accordingly, request withdrawal of this ground of rejection.

Claim Rejections – 35 U.S.C. § 103

Claims 17-18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Moss, EP 0 052 422 A2, in view of Asami et al., U.S. Patent No. 4,393,924. Claims 1, 4-5, 9-11 and 17-18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakane et al., U.S. Patent No. 4,270,360, in view of Asami et al., U.S. Patent No. 4,393,924. Claims 14-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakane et al., U.S. Patent No. 4,270,360, in view of Asami et al., U.S. Patent No. 4,393,924, as applied to claims 1, 4-5, 9-11 and 17-18 above, and further in view of Moss, EP 0 052 422 A2. Applicants respectfully submit that the pending claims are patentably distinct from the cited references, taken either alone or in combination.

Moss is directed to a heat exchanger suitable for use in a system employing an adsorbent material as a source of heat. Specifically, the heat exchanger in Moss comprises a plurality of continuous vertical pathways containing heated liquid which transfers heat to an adsorbent material, causing gas present in the adsorbent material to vaporize, pass through wire ducts and exit the heat exchanger through an outlet. Moss is silent as to a molded body of compressed hydrogen storage material for both storing and supplying hydrogen. More specifically, Moss does not disclose main passages formed between the side walls of the housing of the heat exchanger and chamfered edges of the adsorbent material through which hydrogen is both supplied to the hydrogen storage material for storage and discharged to the exterior of the housing for use as fuel or energy. Instead, Moss sets forth an adsorbent material immediately adjacent to the side walls of the housing. In fact, Moss teaches away from a reservoir with a

defined supply and discharge passage by simply providing free access for adsorbate vapor to contact the bulk of the adsorbent material.

Moreover, Asami et al. is directed to a heat exchanger using a regenerator chamber filled with hydrogen storing material to eliminate temperature differentials between the heat input and heat output. Specifically, the regenerator chamber is disposed between a high temperature fluid pathway and a low temperature fluid pathway, wherein an external reservoir both supplies hydrogen to the chamber and stores hydrogen that is discharged from the chamber. Although Asami et al. appear to generally disclose a molded body of hydrogen storage material, the reference is silent as to main passages formed between the walls of the housing of the regenerator chamber and chamfered edges of the hydrogen storage material for both supplying hydrogen to the hydrogen storage material and discharging hydrogen to the exterior of the housing for use as fuel or energy. More specifically, Asami et al. do not disclose a plurality of filters located between the molded bodies of hydrogen storage material which form hydrogen passages and provide for the permeation of hydrogen into the main passages. In fact, Asami et al. teach away from a reservoir for storing and supplying hydrogen for use as fuel or energy by, instead, employing the hydrogen storage material as an intermediate for controlling temperatures within a heat exchanger.

Furthermore, Nakane et al. disclose a hydrogen-storing alloy disposed between sintered metal plates and heating/cooling members situated a fixed distance apart so as to provide space for holding the alloy. In particular, the hydrogen-storing alloy is generally in the form of powder or granules. Nakane et al. are silent as to a molded body of compressed hydrogen storage material for both storing and supplying hydrogen. More specifically, Nakane et al. do

not disclose a molded body having chamfered edges which form main passages with respect to the corresponding side walls of the housing through which hydrogen is both supplied to the hydrogen storage material for storage and discharged to the exterior of the housing via filters and associated hydrogen passages. In fact, Nakane et al. teach away from Applicants' claimed subject matter by disclosing a single chamber directly connected to an external valve through which hydrogen is supplied to and discharged from the hydrogen-storing alloy.

Applicants, on the other hand, claim a reservoir for storing hydrogen, comprising a molded body of a pre-determined shape having chamfered edges which form main passages with respect to the corresponding side walls of the housing. In particular, Applicants' claimed subject matter provides for a substantially triangular pipe extending within each main passage and including a slit for supplying and discharging hydrogen to and from the molded body. Advantageously, the pipe in each main passage formed by the chamfered edge and the side wall of the housing prevents blockage of the main passage due to expansion of the molded body. None of the cited references teach or suggest such a system. Accordingly, Applicants submit that a prima facie case of obviousness has not been established and combination of the cited references is improper.

For at least these reasons, Applicants submit that amended independent claims 1, 10 and 16-18 are patentably distinct from the cited references, taken either alone or in combination. Further, Applicants submit that claims 4-5, 9, 11 and 14-15, which are directly or indirectly dependent from amended independent claims 1 and 10, are also patentably distinct from the cited references for at least similar reasons. Therefore, Applicants request withdrawal of these grounds of rejections.

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CONCLUSION

Based on the foregoing amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the rejection of claims and allowance of this application.

Respectfully submitted,
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